FIRE FACT 091 – FLAMMABLE LIQUID USE

Gasoline, alcohol, mineral spirits, and solvents are common flammable and combustible liquids used by building owners. Flammable and combustible materials are generally stable when used as directed and may not directly cause a fire while stored or used properly but they will adversely affect the rapid growth of a fire if exposed to one. Results of this condition have overpowered fire suppression systems and directly led to the total destruction of buildings

Proper storage of these liquids and equipment may be allowed in occupied buildings if the storage meets strict criteria

Fuel Equipment
Weedeaters, snowblowers, leaf blowers, lawn tractors and mowers shall not be stored, operated, or repaired within a building unless the room is protected as a hazardous room or the building is fully sprinklered and the aggregate fuel capacity stored does not exceed 10 gallons. Flammable or combustible storage is prohibited in boiler rooms and any other rooms with fuel fired equipment.

It is recommended that flammable and combustible liquid and any gasoline-operated equipment are stored outside of the occupied building.

Liquid Storage
Combustible solvents, cleaners, and chemicals should also be stored in a properly separated hazardous room. Liquid storage must be in proper storage containers or safety cans. Quantities are limited to a total of five gallons for operating storage (see NFPA 30, 2008). When exceeding five gallons of storage, these liquids shall be placed in an approved Flammable Storage Cabinet located in a properly separated area.

Flammable liquid storage cabinets
Available on the commercial market and must be listed and labeled for the use. This will typically be done by Underwriter's Laboratories (UL) or a similar organization. The most common type is a double-wall metal cabinet, yellow in color, and labeled with red lettering stating "FLAMMABLE - KEEP FIRE AWAY". The cabinets come in various sizes.

An option which may be considered by facilities with wood working resources is to construct a wooden flammable liquid storage cabinet in accordance with guidance in NFPA 30. The construction requirements are as follows:

• The bottom, sides, and top shall be at least of exterior grade 1-inch plywood.

• All joints shall be rabbetted and shall be fastened in two directions with wood screws.

• If more than one door leaf, there shall be a rabbetted overlap of at least 1 inch.

• Doors shall have a positive latch.

• Hinges shall not lose their holding capacity in a fire.

• A sill or pan capable of holding a 2 inch depth of liquid shall be at the cabinet's bottom.

• The cabinet shall be labeled in 2 inch letters: FLAMMABLE - KEEP FIRE AWAY

Not more than 120 gal. of Class I, Class II, and Class III liquids may be stored in a storage cabinet. Of this total, not more than 60 gal. may be of Class I and Class II liquids, and not more than three such cabinets may be located in a single area. The one exception is that Class I liquids can not be stored in basements under any circumstances. Storage shall be limited to that required for operation of office equipment, maintenance, demonstration, and laboratory work.

Care must be taken when selecting a location for these storage cabinets. These cabinets must not be placed in rooms that contain any type of heating equipment, such as furnace or boiler rooms, electrical rooms, or any other type of hazardous space or room. They must also be placed so as not to obstruct any exit path or corridor.

Rags that are used in conjunction with flammable and combustible liquids for whatever reason and become contaminated with the particular product should be properly discarded at the end of the work shift. They should not be allowed to acuumulate in any work area for any reason.

Classification of Liquids

Requirements for the safe storage and use of flammable and combustible liquids commonly available depend primarily on their fire characteristics, particularly the flash point of the material in question. These liquids are placed in one of three categories: Class I, Class II, or Class III.

Examples of Class I, II, and III liquids:
Class I- gasoline, thinners, some types of mimeograph solutions, floor refinishers
Class II - diesel fuel, some types of solvents
Class III- lubricants, greases

If you have any questions regarding what class a particular product is, consult the Material Safety Data Sheet which is supplied by the manufacturer and sent with the product. All flammable and combustible liquids must be kept in the proper type and size container, either while in use or in storage. Glass, metal, and plastic or polyethylene containers must meet certain design criteria in order to store these types of liquids.